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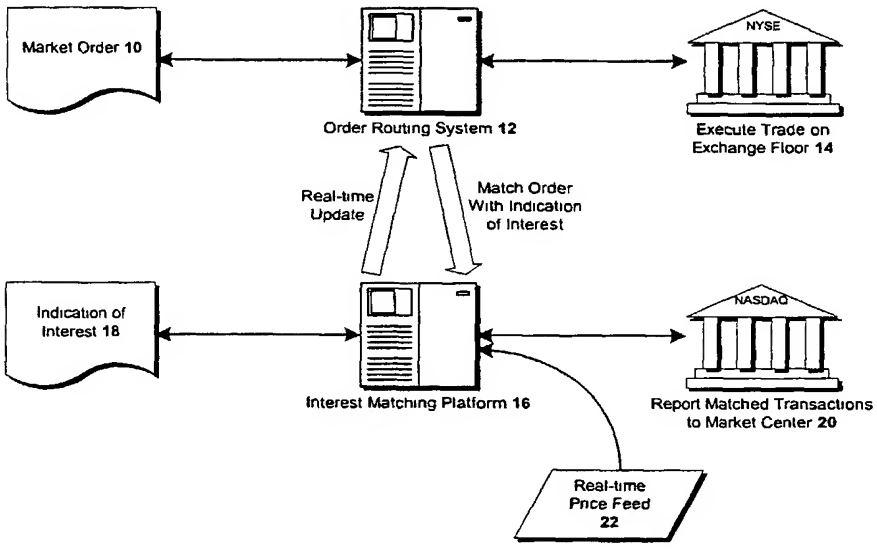
(54) Title: INTEREST MATCHING AND PRICE IMPROVEMENT PLATFORM METHOD AND SYSTEM



(57) Abstract: An equity trading platform including an order routing system (12) and an interest matching platform (16) is provided which matches a stock transaction with other stock transactions and results in price improvement by sharing the spread between both clients is provided. The system advantageously also tracks the remaining number of shares of a transaction and can generate a signal indicating that a portion of the remaining shares should be traded externally from the platform.

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INTEREST MATCHING AND PRICE IMPROVEMENT PLATFORM METHOD AND SYSTEM

CROSS REFERENCE TO RELATED APPLICATION

This application claims priority from United States provisional patent application serial No. 60/143,258 filed on July 9, 1999 and United States patent application serial No. 09/352,303 filed on July 12, 1999, both by the inventors herein.

BACKGROUND OF THE INVENTION

This invention relates generally to an equity trading system for matching the interests of buyers and sellers and for price improvement, and more particularly to a method and system for managing working orders to buy or sell a large number of shares of a stock over a trading day, and matching these transactions with market orders for that stock (i.e., crossing) without the need for physically executing the buy and sell order on an exchange.

Large brokerage houses may often have institutional clients who place orders to buy or sell large numbers of shares of a stock at the current market price. For example, an institutional client may wish to sell 100,000 shares of stock XYZ at market. If the brokerage house attempted to execute that sell order as a single transaction, it is likely that the bid price for XYZ would be significantly lower than the current market price. Similarly, an institutional client who wishes to buy 100,000 shares would likely find that the offer price would be significantly higher than the current market price. For this reason, institutional clients generally give their broker an instruction regarding a transaction involving a large number of shares to "work it over the day" (sometimes referred to as a "working order"). In this case, a broker on the floor of an exchange executes the order over several smaller transactions during the course of the trading day until the entire order is executed. After breaking up the order over the day, the brokerage house computes the average price for the trade and reports that result as the price for the transaction.

Executing a large order over several smaller transactions costs the brokerage house more in commission fees, fees to the exchange, other costs associated with the broker on the floor of the exchange and bookkeeping and accounting costs than it would if the trade were executed as a single transaction. On the other hand, the average price for the smaller transactions may be better than the price obtained if the order were executed as a single transaction.

The same large brokerage houses may also have a great many clients placing smaller market orders for stocks during a trading day. While the brokerage house attempts to obtain the best execution in terms of price for that transaction, the transaction price will typically include a component reflective of the spread between the price someone is willing to pay to buy a share of stock and the price someone is willing to accept to sell a share of stock. Additionally, each of these trades also incurs exchange fees and broker commissions.

Thus, it is useful for the brokerage house to pair off large stock transactions with several small contra stock transactions and cross the shares between its own clients, rather than executing the transactions on the exchange floor. In this way, the brokerage house saves exchange fees and broker commissions. However, existing interest matching platforms are extremely manual intensive and inefficient. Furthermore, existing interest matching platforms have the problem that if a large stock transaction is not successfully fully matched against several smaller transactions, the remaining portion does not get executed.

At the same time, over the last several years there has been an increased focus on obtaining the best execution for equity orders. Each client wants to place a trade and get the best price for the transaction and large brokerage houses want to assure their clients that they are getting the best price for each trade.

What is desired is a completely automated system for matching customer buy orders and customer sell orders and accounting for the transaction without the need for executing a trade on an exchange floor. The system advantageously tracks a national best price over some or all of the national market centers to determine the transaction price for the trade. This transaction price will be typically between the bid and offer price and thus

provide price improvement for both the buyer and the seller. The system also advantageously tracks the progress of the larger order to ensure that it will be filled during the trading day, either by pairing off with small transactions, or by generating a signal indicating that a portion of the remaining shares should be traded on an exchange floor.

SUMMARY OF THE INVENTION

Generally speaking, in accordance with the invention, an automated interest matching and price improvement platform is provided for pairing off and matching market orders to buy and sell stocks. The system preferably tracks a national best price over several of the national exchanges to determine the transaction price for the trades. The system also typically provides a transaction price which splits the spread preferably equally between the buying and selling clients and therefore, provides price improvement for both those clients. The system eliminates many of the exchange fees and broker commissions associated with executing a trade on the floor of an exchange.

In a preferred embodiment, the system also keeps track of whether a large market order will be filled during a trading day and can automatically generate an indication or signal to execute a portion of the transaction on an exchange floor at pre-selected times when an insufficient number of contra matching transactions are made available to the system.

Thus, an equity trading system including an order routing system and an interest matching platform is provided which facilitates the interaction of retail and institutional client order flow and provides price improvement for all trade orders that pair off. The system of the invention allows a brokerage house to capitalize on its large order flow of retail and institutional orders.

Accordingly, it is an object of the present invention to provide an improved interest matching and price improvement platform capable of matching a transaction involving a large number of shares of stock against several smaller contra transactions.

Another object of the present invention is to provide an improved interest matching and price improvement platform capable of providing price improvement for both the buyer and the seller in a cross transaction.

A further object of the present invention is to provide an improved interest matching and price improvement platform capable of tracking the remaining amount of a large market order and providing a signal that a portion of the remaining shares should be traded on an exchange floor.

Still other objects and advantages of the invention will in part be obvious and will in part be apparent from the specifications and drawings.

The invention accordingly comprises the several steps and the relation of one or more such steps with respect to each of the others, and the system embodying features of construction, combinations of elements and arrangement of parts which are adapted to effect such steps, all as exemplified in the following detailed disclosure.

BRIEF DESCRIPTION OF THE DRAWINGS

For a fuller understanding of the invention, reference is had to the following description taken in conjunction with the accompanying drawings, in which:

Figure 1 is a schematic representation depicting an equity trading system including an interest matching and price improvement platform arranged in accordance with a preferred embodiment of the present invention;

Figure 2 is a schematic representation depicting an interest matching and price improvement platform showing several internal modules arranged in accordance with a preferred embodiment of the present invention; and

Figures 3A - 3B are flowchart representations depicting several steps performed by an interest matching and price improvement platform in accordance with a preferred embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

An embodiment of the invention is described. For purposes of this discussion, requests to transact a large number of shares are entered into the system of the invention as an "indication of interest." Referring now to Figures 1 and 2, an equity trading system including an interest matching and price performance platform 16 is shown schematically. Interest matching and price performance platform 16 is also referred to as

simply interest matching platform 16, or IMP 16. The equity trading system manages stock share transactions.

In the equity trading system embodiment shown in Figure 1, a market order or marketable limit order 10 is entered into an order routing system 12. Market order or marketable limit order 10 is also referred to as simply market order 10. Entering market order 10 into order routing system 12 may be accomplished in any of the traditional manners, such as manual entry at a data terminal, importing a computer data file or by transmitting information over the Internet (FTP, HTTP, Telnet and the like). Market order 10 is described in further detail below.

Order routing system 12 typically includes computer software logic for parsing information from market order 10, comparing the information to internal data structures and determining which stock exchange provides the best execution for that stock. Order routing system 12 then transmits the trade to exchange floor 14 which provides that exchange's best price. When the trade is executed, the exchange will typically return an execution report to order routing system 12. Order routing system 12 may then match the execution report with the original order information. Order routing system 12 will also typically return a confirmation message to the user or process that first entered market order 10.

Interest matching platform 16 interacts with, and sends and receives data to order routing system 16 as described in further detail below. An indication of interest 18 is generated and entered into interest matching platform 16. Indication of interest 18 is a book notation of a client's desire to work a large order over the course of the trading day. The investor who generates indication of interest 18 is also known as a liquidity provider for a stock. Entry of indication of interest 18 into interest matching platform 16 may occur by using the brokerage house's order entry system, or by a World Wide Web page or the like. Indication of interest 18 stays on interest matching platform 16 until an opposite side market order comes into interest matching platform 16 to be paired with it. At the time of entry, there is no transaction price, but it is understood that the price would float with the market and when executed, the order would be priced at a price at or in between the current bid-ask spread as reflected through a consolidated quotation system or the like.

Once indication of interest 18 has been entered into the system, it would remain on the books awaiting the arrival of one or more contra side market or marketable limit order 10. These contra orders would be routed to interest matching platform 16 whenever order routing system 12 determines that a stock is available for matching. Interest matching platform 16 provides a real-time update of an interest indication list 24, see Figure 2, to order routing system 12. Interest indication list 24 lists every pending indication of interest 18. Interest indication list 24 typically includes the ticker symbol for the stock, the number of shares of stock to be traded and whether the indication is a buy or a sell. Order routing system 12 may use computer software logic to redirect market order 10 to interest matching platform 16 when market order 10 is for a stock transaction on the other side of an interest indication in the copy of interest indication list 24 maintained in order routing system 12.

Interest matching platform 16 includes computer software logic for matching market order 10 and indication of interest 18 in a match order and interest process 30. Market order 10 information is received from order routing system 12 when order routing system 12 determines that market order 10 is for a stock transaction on the other side of an interest indication in the copy of interest indication list 24 maintained in order routing system 12. Interest matching platform 16 receives the information through a matched order adapter 32. Matched order adapter 32 is typically an API or other computer software logic for interpreting the output of order routing system 12 and converting it to the format used by interest matching platform 16. Indication of interest 18 information is received through an indication of interest adapter 34. Indication of interest adapter 34 is typically an API or other computer software logic for interpreting indication of interest 18 and converting it to the format used by interest matching platform 16.

Interest matching platform 16 also includes an order database 28, see Figure 2, for storing or retrieving and updating the status of every matched transaction, and an updated price table 26, which is updated from a real-time price feed 22. Updated price table 26 provides current market information (such as the NBBO, described below) for determining the transaction price for the matched transaction, as described in further detail below.

After the transactions are matched, interest matching platform 16 then generates a signal to report the matched transactions to a market center 20 or other market facility such as NASDAQ and the like. The market center or exchange typically acknowledges the transactions by returning an acknowledgement report to interest matching platform 16. Interest matching platform 16 then matches the acknowledgement report with an interest position in interest indication list 24 and updates a record of the transaction in order database 28. Interest matching platform 16 may then return an execution report to order routing system 12. Order routing system 12 treats this execution report the same way it would treat an execution report received from the step of executing the trade on exchange floor 14.

Entry into the system may occur by using the brokerage house's order entry system, or by a World Wide Web page or the like. A liquidity provider's indication of interest stays on the system until an opposite side market or marketable limit order comes into the system to be paired with it. At the time of entry into the system, the order is not priced, but it is understood that the price will float with the market and the executed order would be priced in between the current bid-ask spread as reflected through a consolidated quotation system.

Once an indication of interest has been entered into the system, it would rest on the electronic book awaiting the arrival of contra side market or marketable limit order. These contra orders would be routed to the system whenever the system indicates that a stock is available for matching. For example, a brokerage house may use an order routing system for pairing off market orders. The order routing system could also scan all orders entered into the interest matching platform prior to routing those orders to a stock exchange floor. If the cross trading system indicates an outstanding working order on the books, the contra order is matched with it.

An example is now described. Assume that the national best bid/offer (NBBO) for stock XYZ is currently 20 - 20 1/4. If an institutional client wanted to work an order to buy 5000 shares of XYZ over the trading day, rather than trading all 5000 shares at once on exchange floor, the working order is entered as an indication of interest to buy 5000 shares of XYZ in the interest matching platform. The indication of interest would be

transcribed to an interest position list and remain there until a market order to sell up to 5000 shares of XYZ was also received. At that time, the order or some portion of the order would become marketable and the brokerage house would execute a cross transaction between the two customer orders at 20 1/8 and report the transaction to a stock market. Thus, both the buyer and the seller will receive price improvement, each getting their executed transaction at a price 1/8 better than they might have received on an exchange. The brokerage house saves exchange fees, broker commissions and other costs associated with physically executing a trade on an exchange floor, and will typically also receive a commission from both clients for the trade.

In a preferred embodiment of the invention, after a pre-selected time period has elapsed, interest matching platform 16 automatically converts indication of interest 18 (or some portion of it) into a market order and sends that order to the primary market, a market maker, or an order execution facility by generating market order 10 reflective of the transaction and entering market order 10 into routing system 12 as described above. Indication of interest 18 (or some portion of it) will then be removed from interest indication list 24. This assures that the client will execute some portion of indication of interest 18 throughout the trading day even if a contra side order never appears in order routing system 12.

A method in accordance with a preferred embodiment of invention is now described with respect to Figures 3A and 3B. The method begins at a start 40. Current indications of interest are entered into the system of the invention at a step of loading indication of interest 42. Loading indication of interest 42 may be accomplished through an indication of interest adapter process 44 which converts every indication of interest 18 to the format used by the system. In this way, indications of interest from any diverse sources can be entered into the system simply by providing an appropriate indication of interest adapter process 44 for each source. As shown in Figure 3A, indication of interest 18 includes a ticker symbol, an indication of the transaction type and the amount of shares, for example an interest to buy 1000 shares of IBM stock.

Next, the method performs the step of updating interest indication list 46. Updating interest indication list 46 writes or modifies a line in interest indication list 24. In

a preferred embodiment, all interest indications for a particular stock are aggregated in a step of modifying average price account 48. At this point, interest matching platform 16 includes an up-to-date interest indication list 24. Periodically, the method performs the step of updating order routing system interest table 50. In this way, order routing system 12 has an up-to-date copy of interest indication list 24.

The method also performs the step of loading a market order 52. Loading a market order 52 may be accomplished through a market order entry process 54 which converts market order 10 to the format used by the system. In this way, market orders from many diverse sources can be entered into the system simply by providing an appropriate market order entry process 54 for each source. As shown in Figure 3A, market order 10 includes a ticker symbol, an indication of the transaction type and the amount of shares, for example a market order to sell 200 shares of IBM.

At this point, order routing system 12 includes information about market order 10 and indication of interest 18. The method then tests whether the symbol is in the ORS interest table 56, and if it is not, the method performs a step of sending the market order to the exchange floor for execution 58. On the other hand, if decision 56 determines that the symbol is in the ORS interest table, the method determines a decision is the quantity greater than the amount in the ORS interest table 60, and if it is, that is, the interest position in the ORS copy of interest indication list 24 is less than market order 10 quantity, the method executes step 58 as above.

If decision 60 determines that the quantity in market order 10 is equal to or less than the amount of shares in the interest indication, decision 60 equals no, the method performs the step of sending the market order to IMP for matching 62 and then transfers to A at a transfer point 64.

Figure 3B continues at A at a transfer point 66 and evaluates the decision is the symbol in the IMP interest position table 68. If decision 68 indicates that the symbol is not in the IMP interest position table, the method performs an error process 70. Error process 70 typically requires manual intervention from a user to determine why the interest position table in order routing system 12 indicates that the symbol is available for matching and sending the market order 10 to interest matching platform 16, when the symbol is not

in the IMP interest position table. Alternatively, error process 70 may write the error event to a log and return market order 10 to order routing system 12 for continued processing.

If decision 68 indicates that the symbol is in the IMP interest position table, the method performs a get current bid/ask price process 72 which retrieves the current bid and ask price from updated price table 26. Next, the method performs a process of calculating a mid-point price process 74, as described in further detail below. Generally, calculating mid-point price 74 is accomplished by taking the average of the bid price and the ask price and rounding it to the nearest allowable fractional price for that stock.

Under certain conditions, process 74 may need to include additional logic for determining the mid-point price. For example, where the bid price and ask price differ by the minimum price increment (for example, 1/16), process 74 randomly or arbitrarily assigns either the bid price or the ask price as the mid-point price. Alternatively, process 74 may determine whether to assign the mid-point price as the bid price or the ask price based on an analysis of other factors. In these cases, only one client will have an improved price over the market price and the other client will have the market price.

The method continues with the step of updating order database with the mid-point price 76 which transfers the mid-point price to order database 28 and assigns it as the transaction price.

The method then performs the step of updating IMP interest table with the new quantity 78. This involves adjusting the interest position in interest indication list 24 to reflect the now executable matching transaction, in the example given, the interest position is now on a working order to buy 800 shares of IBM (1,000-200).

The system also performs a process of forwarding the cross transaction to an exchange for execution or reporting the transaction to a market center 80. Once the exchange confirms the execution of the order, the method performs the step of transmitting an execution report to ORS 82 from interest matching platform 16. The method ends by transferring to B (shown on Figure 3A) at a transfer point 84. Transfer point B 86 in Figure 3A transfers the method to step 50 and continues as above. At this point, interest indication list 24 has been updated to reflect the matching transaction and has been copied

to order routing system 12 and order routing system 12 is now ready to process a new market order 10 at step load market order 52 and continue on as described above.

If an indication of interest remains in the equity trading system described above, interest matching platform 16 will preferably include computer software logic for sending a market order to order routing system 12 for some portion of the remaining interest in order to ensure that the entire indication of interest 18 is executed during the trading day.

For example, a typical trading day may be divided into 13 half hour increments. On every half hour interval, interest matching platform 16 can issue a market order to sell a portion of each interest indication from interest indication list 24 such that the total amount of shares transacted, including earlier matched transactions and market orders, equals the number of 1/13's of the total interest that have transpired in the trading day. Thus, by the last half hour of the trading day, a market order should be generated that, after accounting for all earlier matched transactions and market orders, executes the remaining interest. Of course, additional algorithms may be used to determine how many shares should be executed by a market order during any given time interval of the trading day.

It will be apparent to those who understand this specification, that many of these steps and procedures described can be performed simultaneously or in a different order than as depicted in figures 3A and 3B. What is important is that both order routing system 12 and interest matching platform 16 transfer information in a verifiable manner, and preferably return acknowledgements of the data transfer using any standard error checking protocol. It should also be recognized that the present invention could also be applied to options and futures trades.

Additionally, the present invention may also be used within a system that allows market orders that are entered into the system to be broadcast and displayed for a period of time, for example, 30 seconds, to clients. The clients receive these alert messages and are then given the opportunity to make a bid or offer at a price better than the existing market price for that order. At the end of the period of time, the client whose bid or offer was the best (or the first bid or offer in the event of multiple bids or offers at the same

price) is matched with the market order and this cross transaction may then be reported to the market center. In this way, additional liquidity may be provided within the system of the present invention.

In accordance with the foregoing, the present invention provides a system and method to allow matching of stock transactions apart from an exchange. The system and method advantageously provides price improvement for both the buyer and the seller, among its many other benefits.

It will thus be seen that the objects set forth above, and those made apparent from the preceding description, are efficiently obtained and, since certain changes may be made in the above method and system without departing from the spirit and scope of the invention, it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

CLAIMS

WHAT IS CLAIMED IS:

1. An automated method for matching orders to buy and sell shares of stock to effectuate a cross transaction independent of a market center, comprising the steps of:

receiving at least one indication of interest to purchase or sell a predetermined quantity of a desired stock of a particular entity;

storing said at least one indication of interest in a storage device;

receiving a plurality of market orders to purchase or sell various quantities of various stock of various entities;

determining whether any of said market orders are for a contra transaction of said desired stock of said particular entity;

evaluating whether to match any of said market orders for said desired stock of said particular entity with said at least one indication of interest based on predetermined criteria; and

if said matching occurs, creating a cross transaction therefor and, determining a price for said cross transaction.

2. The automated method as claimed in claim 1, wherein if said matching occurs, further comprising the step of reporting said cross transaction to an appropriate market center.

3. The automated method as claimed in claim 1, wherein the step of determining a price includes determining the price based on the spread between the current bid/ask price for said desired stock.

4. The automated method as claimed in claim 3, further comprising the step of storing the current bid/ask price.

5. The automated method as claimed in claim 4, wherein the price is a mid-point between the current bid price and current ask price for said desired stock.

6. The automated method as claimed in claim 1, wherein if no matching of particular market orders occurs, further comprising the step of transmitting said unmatched market orders to an appropriate market center for execution.

7. The automated method as claimed in claim 1, wherein said matching occurs when a market order to sell is received for no more than said predetermined quantity of said desired stock of said particular entity in said indication of interest to purchase.

8. The automated method as claimed in claim 1, wherein said step of evaluating occurs over the course of a trading day, and further comprising the step of tracking the progress of said evaluating step.

9. The automated method as claimed in claim 8, further comprising the step of transmitting at least a portion of said indication of interest which is unmatched over the course of the trading day to a market center for execution.

10. The automated method as claimed in claim 9, wherein the full predetermined quantity of said desired stock of said particular entity is matched in a cross transaction or executed at a market center by the end of the trading day on which said indication of interest is received.

11. The automated method as claimed in claim 8, wherein after a pre-selected period of time has elapsed during the course of the trading day, further comprising the steps of converting at least a portion of said indication of interest into a regular market order, and transmitting said regular market to a market center for execution.

12. The automated method as claimed in claim 1, wherein said predetermined criteria includes an evaluation regarding the quantity of desired stock of said particular entity in a market order.

13. A computerized system which manages working orders to buy and sell shares of stock independently of an exchange, comprising:

an interest matching platform;

a first entry system for allowing loading of indications of interest for shares of stock into said interest matching platform;

a second entry system for loading market orders for shares of stock into said interest matching platform;

said interest matching platform including a matching system which selectively matches said entered indications of interest with said entered market orders;

said matching system determining whether to match one or more of said market orders with at least one of said indications of interest using predefined parameters;

if said matching occurs, a cross transaction is created and a price for said cross transaction is determined; and

if said matching does not occur, said unmatched market orders are transmitted to an exchange for execution.

14. The computerized system as claimed in claim 13, wherein said interest matching platform includes an order database for allowing storage, retrieval and status updating of matched transactions.

15. The computerized system as claimed in claim 13, wherein said interest matching platform includes a price table which is updateable from a real-time price feed, said price for said cross transaction being determined from said price table.

16. The computerized system as claimed in claim 13, wherein said interest matching platform generates a signal to report said cross transaction to an appropriate exchange.

17. The computerized system as claimed in claim 13, wherein after a predetermined period of time has elapsed, at least a part of the unmatched portion of said indication of interest is converted to a market order and transmitted to an exchange for execution.

18. The computerized system as claimed in claim 13, wherein said predefined parameters include a parameter directed to the quantity of shares of stock in a market order and the quantity of shares of stock in said indication of interest.

19. The computerized system as claimed in claim 18, wherein said predefined parameters include a parameter directed to identification of the entity whose shares of stock are being traded.

20. The computerized system as claimed in claim 19, wherein said matching occurs when the shares of stock in a market order to sell are for the same entity as the shares of stock in said indication of interest to purchase, and said share quantity in said market order is no greater than the share quantity in said indication of interest.

21. An automated system for matching customer equity buy orders and customer equity sell orders received during the course of a trading day at a brokerage house to effectuate a buy/sell transaction without the need to first execute a trade on an exchange, comprising:

a storage device for storing a plurality of indications to buy or sell selected share quantities of various equities received over the course of a trading day;

a receiving device which receives a plurality of market orders to buy or sell selected share quantities of various equities over said trading day;

a matching system which compares said indications in said storage device against said market orders in said receiving device to effectuate a matched transaction if at least one said indication is for the same equity as at least one said market order, and said quantity of said market order is no more than the quantity of said indication.

22. The automated system as claimed in claim 21, further comprising a price feed device for receiving updated prices of equities during said trading day.

23. The automated system as claimed in claim 22, wherein said updated prices are received in real time.

24. The automated system as claimed in claim 21, wherein said matching system reports matched transactions to an exchange.

25. The automated system as claimed in claim 21, wherein said matching system updates said storage device as said market orders are matched against said indications.

26. The automated system as claimed in claim 25, wherein said matching system selectively converts unmatched portions of said indication into regular market orders.

27. The automated system as claimed in claim 26, wherein said regular market orders are transmitted to an exchange for execution.

28. An automated system which matches orders to buy and sell shares of stock to effectuate a cross transaction independent of a market center, comprising:

a receiving device which receives at least one indication of interest to purchase or sell a predetermined quantity of a desired stock of a particular entity;

a storage device which stores said at least one indication of interest in a storage device;

a routing device which routes a plurality of market orders to purchase or sell various quantities of various stock of various entities;

a platform which receives said market orders from said routing device and determines whether any of said market orders are for a contra transaction of said desired stock of said particular entity;

said platform evaluating whether to match any of said market orders for said desired stock of said particular entity with said at least one indication of interest based on predetermined criteria; and

if said matching occurs, said platform creating a cross transaction therefor and, said platform determining a price for said cross transaction.

29. The automated system as claimed in claim 28, wherein if said matching occurs, said cross transaction is reported to an appropriate market center.

30. The automated system as claimed in claim 28, wherein said platform determines the price based on the spread between the current bid/ask price for said desired stock.

31. The automated system as claimed in claim 30, wherein said platform stores the current bid/ask price.

32. The automated system as claimed in claim 31, wherein the price is a mid-point between the current bid price and current ask price for said desired stock.

33. The automated system as claimed in claim 28, wherein if no matching of particular market orders occurs, said platform transmits said unmatched market orders to an appropriate market center for execution.

34. The automated system as claimed in claim 28, wherein said matching occurs when a market order to sell is received for no more than said predetermined quantity of said desired stock of said particular entity in said indication of interest to purchase.

35. The automated system as claimed in claim 28, wherein said evaluating occurs over the course of a trading day, said platform tracking the progress of said matching step.

36. The automated system as claimed in claim 35, wherein said platform transmits at least a portion of said indication of interest which is unmatched over the course of the trading day to a market center for execution.

37. The automated system as claimed in claim 36, wherein the full predetermined quantity of said desired stock of said particular entity is matched in a cross transaction or executed at a market center by the end of the trading day on which said indication of interest is received.

38. The automated system as claimed in claim 35, wherein after a pre-selected period of time has elapsed during the course of the trading day, said platform converts at least a portion of said indication of interest into a regular market order, and transmits said regular market order to a market center for execution.

39. The automated system as claimed in claim 28, wherein said predetermined criteria includes an evaluation regarding the quantity of desired stock of said particular entity in a market order.

40. A computerized method for managing working orders to buy and sell shares of stock independently of an exchange, comprising the steps of :

loading indications of interest for shares of stock into an interest matching platform;

loading market orders for shares of stock into said interest matching platform;

selectively matching said entered indications of interest with said entered market orders;

determining whether to match one or more of said market orders with at least one of said indications of interest using predefined parameters;

if said matching occurs, creating a cross transaction and determining a price for said cross transaction; and

if said matching does not occur, transmitting said unmatched market orders to an exchange for execution.

41. The computerized method as claimed in claim 40, wherein said interest matching platform includes an order database for allowing storage, retrieval and status updating of matched transactions.

42. The computerized method as claimed in claim 40, wherein said interest matching platform includes a price table, further comprising the step of updating said price table from a real-time price feed, said price for said cross transaction being determined from said price table.

43. The computerized method as claimed in claim 40, further comprising the step of generating a signal to report said cross transaction to an appropriate exchange.

44. The computerized method as claimed in claim 40, wherein after a predetermined period of time has elapsed, further comprising the steps of converting at least a part of the unmatched portion of said indication of interest into a market order and transmitting said market order to an exchange for execution.

45. The computerized method as claimed in claim 40, wherein said predefined parameters include a parameter directed to the quantity of shares of stock in a market order and the quantity of shares of stock in said indication of interest.

46. The computerized method as claimed in claim 45, wherein said predefined parameters include a parameter directed to identification of the entity whose shares of stock are being traded.

47. The automated method as claimed in claim 46, wherein said matching occurs when the shares of stock in a market order are for the same entity as the shares of stock in said indication of interest, and said share quantity in said market order is no greater than the share quantity in said indication of interest.

48. An automated method for matching customer equity buy orders and customer equity sell orders received during the course of a trading day at a brokerage house to effectuate a buy/sell transaction without the need to first execute a trade on an exchange, comprising the steps of:

storing a plurality of indications to buy or sell selected share quantities of various equities received over the course of a trading day;

receiving a plurality of market orders to buy or sell selected share quantities of various equities over said trading day;

comparing said indications in said storage device against said market orders in said receiving device to effectuate a matched transaction if at least one said indication is for the same equity as at least one said market order.

49. The automated method as claimed in claim 48, further comprising the step of receiving updated prices of equities during said trading day.

50. The automated method as claimed in claim 49, wherein said updated prices are received in real time.

51. The automated method as claimed in claim 48, further comprising the step of reporting matched transactions to an exchange.

52. The automated system as claimed in claim 48, further comprising the step of updating said storage device as said market orders are matched against said indications.

53. The automated system as claimed in claim 52, further comprising the step of selectively converting unmatched portions of said indication into regular market orders.

54. The automated system as claimed in claim 53, further comprising the steps of transmitting said regular market orders to an exchange for execution.

FIGURE 1

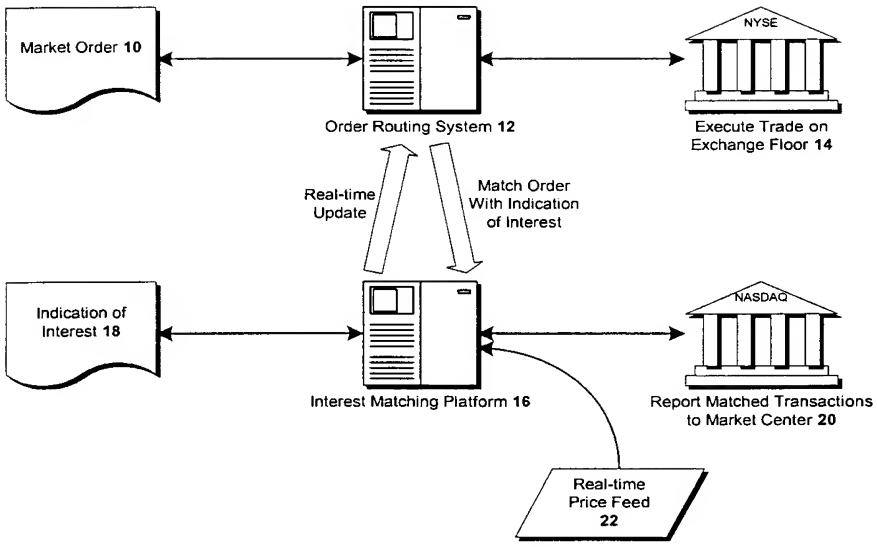


FIGURE 2

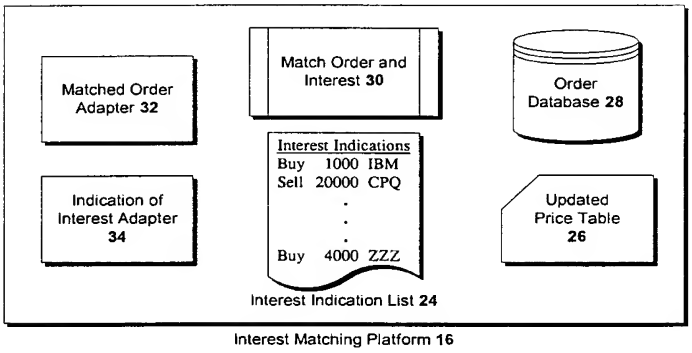
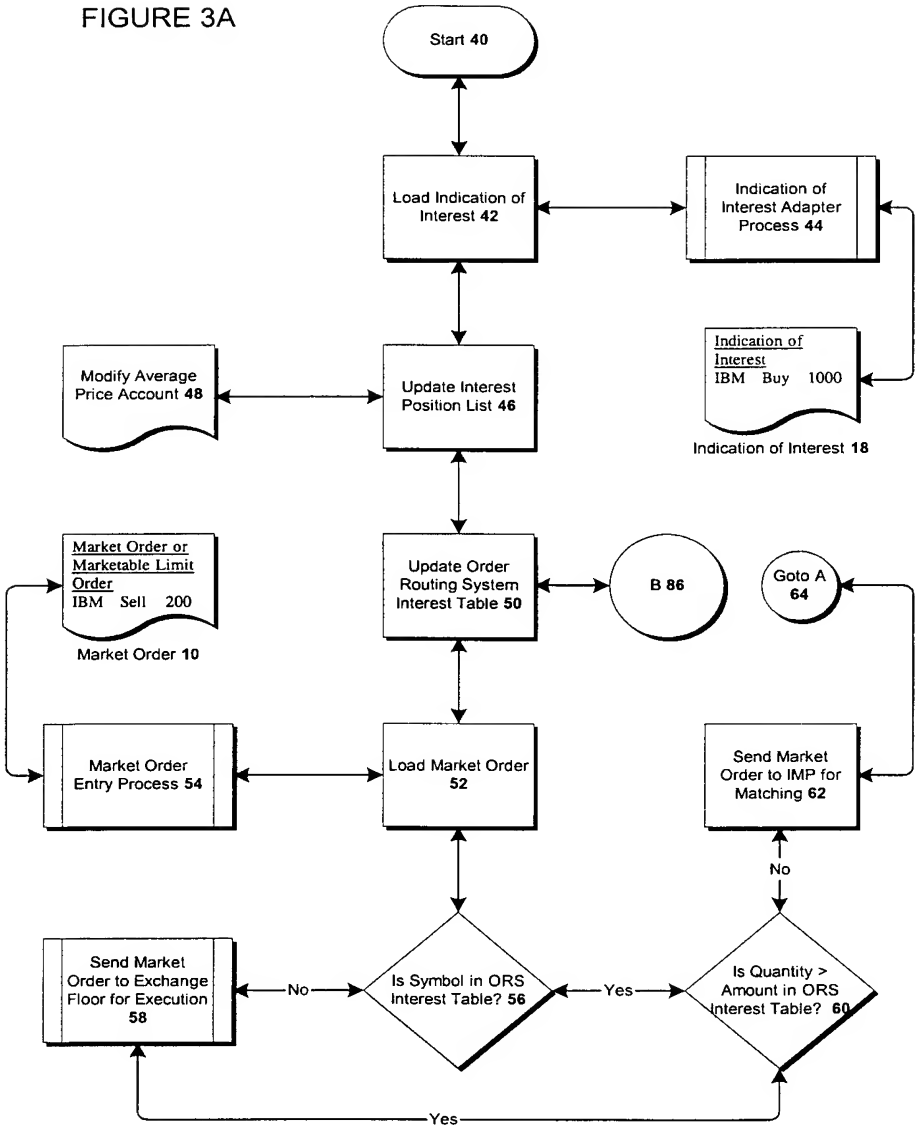


FIGURE 3A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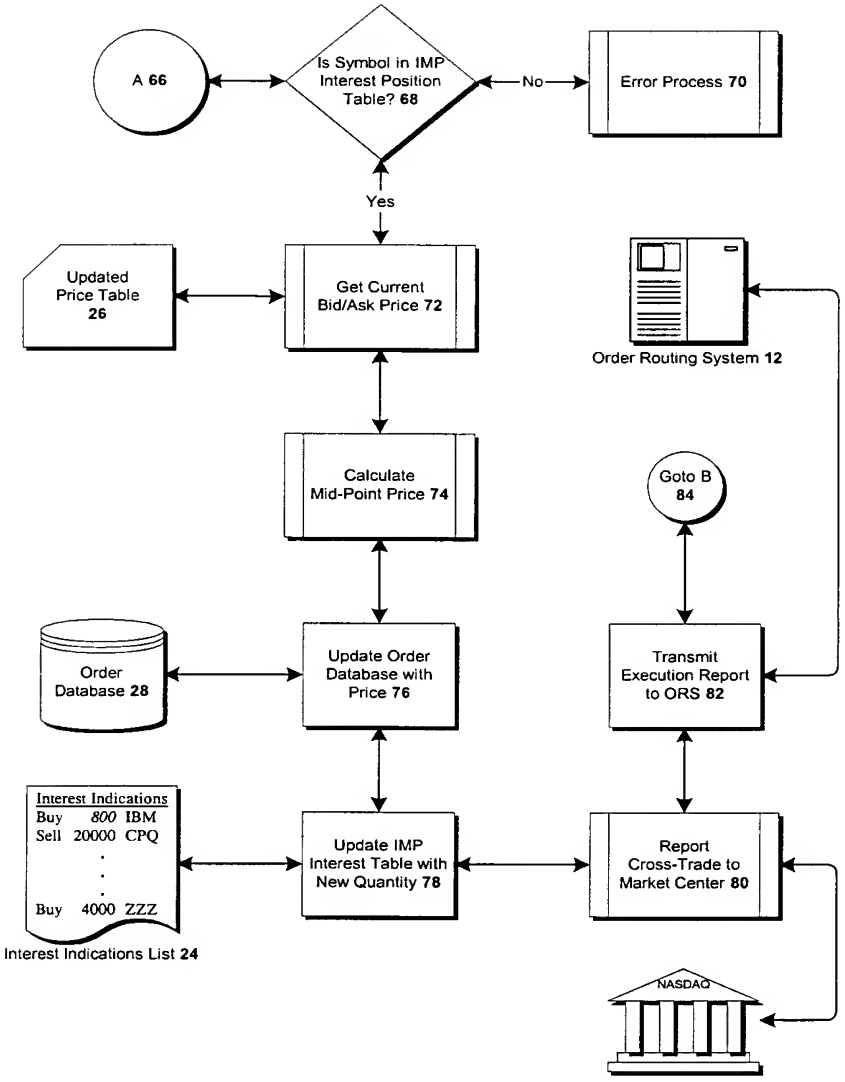
Load Indication of Interest 42
Indication of Interest Adapter Process 44
Indication of Interest
IBM Buy 1000
Indication of Interest 18
Modify Average Price Account 48
Update Interest Position List 46
Market Order or Marketable Limit Order
IBM Sell 200
Market Order 10
Update Order Routing System Interest Table 50
B 86
Goto A 64
Market Order Entry Process 54
Load Market Order 52
Send Market Order to IMP for Matching 62
No
Send Market Order to Exchange Floor for Execution 58
No
Is Symbol in ORS Interest Table? 56
Yes
Is Quantity > Amount in ORS Interest Table? 60
Yes

FIGURE 3B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Is Symbol in IMP Interest Position Table? 68
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Error Process 70
Yes
Updated Price Table 26
Get Current Bid/Ask Price 72
Order Routing System 12
Calculate Mid-Point Price 74
Goto B 84
Order Database 28
Update Order Database with Price 76
Transmit Execution Report to ORS 82
Interest Indications
Buy 800 IBM
Sell 20000 CPQ
Buy 4000 ZZZ
Interest Indications List 24
Update IMP Interest Table with New Quantity 78
Report Cross-Trade to Market Center 80
NASDAQ

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US00/18673

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) :G06F 17/60
US CL :705/35, 36, 37

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 705/35, 36, 37

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

WEST 2.0, CAS ONLINE, DIALOG, IEEE

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5,101,353 A (LUPIEN et al) 31 March 1992, see entire document.	1-54
A	US 5,689,652 A (LUPIEN et al) 18 November 1997, see entire document.	1-54
A	US 5,845,266 A (LUPIEN et al) 01 December 1998, see entire document.	1-54
A	US 5,924,082 A (SILVERMAN et al) 13 July 1999, see entire document.	1-54
A	US 5,809,483 A (BROKA et al) 15 September 1998, see entire document.	1-54

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

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"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art	
"&" document member of the same patent family	

Date of the actual completion of the international search 12 AUGUST 2000	Date of mailing of the international search report 18 SEP 2000
Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230	Authorized officer James R. Matthews TOD SWANN Telephone No. (703) 308-7791

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